ADDENDUM TO USER'S MANUAL

Courier HST Dual Standard,
Courier HST and Courier V.32 Modems
September, 1989

The following changes were made after the manual was printed. You may wish to make a note of them on the appropriate pages and on the Reference Card. Note that this new information may not be included in the summaries on the bottom of the modem case.

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&A2—For owners of Dual Standard modems. Pages 5-5, C-7.

This setting causes the modem to return additional result codes that indicate the modulation for a call, as follows. (ARQ, meaning Automatic Repeat Request, is the term USRobotics uses to indicate a call under error control.)

23/CONNECT 9600/HST	or	33/CONNECT 9600/V32
27/CONNECT 9600/ARQ/HST	or	37/CONNECT 9600/ARQ/V32
28/CONNECT 4800/HST	or	38/CONNECT 4800/V32
29/CONNECT 4800/ARQ/HST	or	39/CONNECT 4800/ARQ/V32

Courier HST and Courier V.32 modems can be set to &A2, but they will always report the same mode, either HST or V32, respectively.

If your software cannot handle the added information in the result codes, you'll have to select &A1 (the factory setting) or &A0. See pages 5-4–5-5.

Courier HST Dual Standard Handshaking—B1 Setting. Page E-3.3.

The manual does not mention that a Dual Standard modem set to B1, in Originate mode, switches to V.32 modulation in response to all answering V.32 modems except a Dual Standard modem. An answering Dual Standard modem, as stated in the manual, switches to HST modulation.

S28=0. Pages 4-2, 6-10–6-11, B-5, E-3.1–E-3.2.

The manual incorrectly states that setting register S28 to 0 disables V.32 modulation. S28=0 eliminates only the 3000/600 Hz answer tones (p. E-3.3), for a shorter V.32 connect time.

&D*n*—Data Terminal Ready (DTR) command. Page C-7.

This command, like DIP switch 1, controls the DTR signal sent by the terminal or computer (DTE) to the modem. At power on and when reset (ATZ), the modem enables the switch setting. Use this command independently of the switch setting, but review your software's requirements.

&D0 DTR override (DTR always ON).
&D1 Reserved.
&D2 The DTE must signal DTR for the modem to accept commands. Dropping DTR terminates a call.

&C*n*—Carrier Detect (CD) command. Page C-7.

This command, like DIP switch 6, controls the Carrier Detect (CD) signal sent by the modem to the DTE. At power on and when reset (ATZ), the modem enables the switch setting. Use this command independently of the switch setting, but review your software's requirements.

&C0 CD override (CD always ON).
&C1 Courier sends CD signal when it connects with another modem, drops CD on disconnect.

&S2, &S3—Additional Data Set Ready (DSR) settings. For specialized installations, e.g., automatic callback units. Page 4-13, C-9.

- &S2—On loss of carrier, modem sends a pulsed DSR signal with Clear to Send (CTS) following Carrier Detect (CD).
- &S3—This is the same as &S2, but without CTS following CD.

Register S24, settings for pulsed DSR, new values. Page B-5.4.

Pulsed DSR is enabled through &S2 or &S3, above, in 20-millisecond units. The default value is 150 (3 sec.).

Test Pattern at 300 bps. Pages F-2.3, F-4.1.

To use the test pattern for analog loopback or by itself at 300 bps, set your software to 300 bps, and set the modem to fixed DTE and link rates, that is, to &B1 and &N1.

Another way to enable bit-mapped S-Registers. Pages B-5.2–B-5.4.

Instead of checking and adding the values of each bit in a register, this command allows you to turn each bit ON (1) or OFF (0). The format is ATS*r*.*b* = *n*, where *r* is the register, .*b* is the bit (0–7), and *n* is 0 (OFF) or 1 (ON). For example, ATS13.2=1 turns on bit 2 of register S13. The example ATS13.2=1 .3=1 .6=0 turns bits 2 and 3 on and turns bit 6 off. register S13.

Register S13—Additional bit-mapped function. Page B-5.2.

- Bit 5 (S13=32) disables HST modulation. This is used only for testing V.32 modulation in Dual Standard modems.

Register S27—Additional bit-mapped functions. Page B-5.4.

- Bit 0, as stated in the manual, is used to select Bell or V.21 mode at 300 bps. To enable V.21 mode, type AT S27=1.

- Bit 1 (S27=2) enables unencoded (non-trellis-coded) modulation in V.32 mode. This option is part of the CCITT V.32 recommendation, but is rarely used.

- Bit 2 (S27=4) disables V.32 modulation. This is used only for testing HST modulation in Dual Standard modems.

- Bits 6 and 7 of S27 can be used to raise the modem's computer interface (DTE) rate higher than the link rate for connections above 2400 bps, even though the modem is set to &B0.

  This option is provided for operators of electronic bulletin boards (BBS's) who have set their modem to &B0. For calls above 2400 bps, the modem switches its DTE rate higher than the link rate according to the S27 setting, to enhance throughput. Operators can program their software so that on receipt of a high-speed /ARQ CONNECT result code, the software shifts the DTE rate up. Bit 7 enables the speed shift and bit 6 selects the DTE rate.

BIT	VALUE	RESULT
6	0	DTE rate shifts up to 19.2K bps when bit 7 is ON
	64	DTE rate shifts up to 38.4k bps when bit 7 is ON
7	128	Enable DTE rate speed shift for a high-speed ARQ connection if the modem is set to &B0

NOTE: Most communications software products do not support this feature. Enabling bits 6 and 7 with standard software may result in loss of data.

Remote Digital Loopback (RDL)—Correction and Addition. Pages F-3.1–F-3.2.

1. The procedures beginning on page F-3.1 are for *initiating* an RDL test. Follow Step 1. Modify Step 2 as stated in the manual by *not* including the semicolon with the command. Once a connection is established, wait at least one second before sending the modem the escape code (+++) to bring it back to Command mode. Follow Steps 3–4. Disregard Step 5 as stated in the manual. To terminate the test, first send the modem the escape code sequence (+++). When you receive the OK result code, do either of the following.

To remain online: first disable RDL testing (ATS16=0). If you wish, issue additional commands, ending with the O command that returns the modem online. Keep in mind, however, that if you want the remainder of the call to be under error control, you must first hang up the modem. &M settings cannot be changed during a connection.

To terminate the call: first hang up the modem (ATH). Then reset S16 to Data mode (S16=0) and optionally reset the modem to error control (&M4) as in the following example.

ATH S16=0 &M4 <Enter>

2. To respond to another modem's RDL request, set the modem to RDL test mode (ATS16=8). When the remote modem calls and sends an RDL request, your modem's transmitter and receiver are used in the remote user's test. (You will not be able to use your modem until the remote user ends the test.)

&M3 and Continuous Synchronous Mode. Pages 7-5, C-8.

This setting and function have been removed. To operate in synchronous mode follow the directions in chapter seven, but disregard any references to &M3 or Continuous Synchronous Mode.

RTS/CTS delay, Register S26—Synchronous Operations. Page 7-2.

The manual does not state that the modem's Request to Send/Clear to Send (RTS/CTS) delay only works once a synchronous connection is established. Note that this should not cause any problems with your synchronous hardware or software.

Synchronous Operations—Modulation and link rate guidelines. Page 7-5.

Use the following guidelines to connect with the specified type of modem. You may also want to review Chapter 3 and/or Appendix E-3 in the manual for additional information on modulation and link negotiation.

Remote USRobotics modem, HST mode: Courier HST modems are always set to HST mode, B1, unless they are answering international calls, for which they are set to B0. Set answering Dual Standard modems to B1; set calling Dual Standard modems to either B1 or B0. For a 2400 bps connection, set both modems to a variable link rate, &N0. For a 9600 bps connection, set both modems to a fixed link rate, &N6.

Remote USRobotics modem, V.32 mode: Courier V.32 modems are always set to B0. Set answering Dual Standard modems to V.32 mode, B0; set calling Dual Standard modems to either HST or V.32 mode, B1 or B0 respectively. Set both modems to a variable link rate, &N0. The modems will connect at the highest possible rate.

Other V.32-compatible modems: Set the Courier to V.32 mode, B0. Try a variable link rate, &N0, first. If that doesn't work, try &N6 (9600 bps) or &N3 (2400 bps).

Link Diagnostics Screen (ATI6)—Explanation of terms. Pages 8-2–8-3.

- Chars sent and Octets sent—For calls under data compression, the number of characters sent may be less than the number of octets sent, due to buffering operations.
- Line Reversals—This only applies to HST-mode operations, when the modems switch the high and low speed channels.
- Fallback—At this time, online fallback is only reported Enabled in HST mode.
- Speed—A new term that shows the last rate at which the modems were connected.

As stated in the manual, one modem needs to be in Originate mode, the other in Answer mode. Because the Answer modem's answer tone times out after 60 seconds, have the Originate modem powered on, operating and ready to respond to the answer tone before starting up the Answer modem. In addition, Originate modems should have answer mode disabled, DIP switch 5 DOWN. DIP switch 5 should be UP for answer modems. Otherwise, set-up procedures differ if the modems are to operate in Dumb or Smart mode, as follows:

Dumb Mode

1. Set your communications software to the rate at which you want the modems to communicate, e.g., 9600 bps. Power on the modems with DIP switch 8 DOWN for Smart mode.
2. Send the modems the command **AT&L1&W <Enter>**. &L1 forces the modems off hook at power on and enables them to re-establish their connection should it be broken. &W loads &L1 to nonvolatile memory (NRAM),
3. Set the modems to load NRAM settings at power-on, DIP switch 10 UP, to Dumb mode, DIP switch 8 UP, and to either Originate or Answer mode, DIP switch 5 DOWN or UP, respectively. Then power off and power on the modems. The modems initiate the new DIP switch settings and establish the connection.

Smart Mode

The fastest way to configure the modems and get them operating is to write their defaults to nonvolatile memory (NRAM) and have them go off hook immediately in either Originate or Answer mode, as in the following example. Set DIP switch 5 DOWN on the Originate modem, UP on the Answer modem; set DIP switches 8 and 10 UP, for Smart mode and for NRAM defaults.

Power on the modems. Send the following command, which enables the modems to connect without dialing (&L1), configures NRAM (&W), and forces each modem off hook in either Originate (D) or Answer (A) mode.

AT &L1 &S2 [. . . other NRAM defaults . . .] &W D [or A] <Enter>

&S2 causes the modems to send a Clear to Send signal only after they send the Carrier Detect signal. (See page 4 of this addendum.) Delaying CTS prevents the modems, if they are trying to reconnect, from misinterpreting an accidental key stroke as the command (any key) to abort the reconnect sequence.